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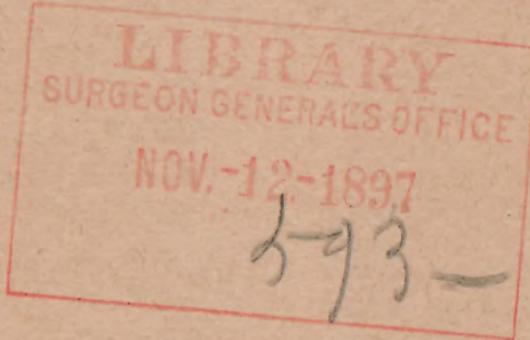
NOTES ON DERMATITIS VENENATA

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NOTES ON DERMATITIS VENENATA.¹

BY JAMES C. WHITE, M.D., BOSTON,
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I DESIRE to present to the Association some brief notes on the occurrence of forms of dermatitis venenata produced by certain substances which were not included in my work on this subject published in 1887, because not previously met with by me. Some of these instances have been already published,² and will only be referred to by title; the others are new to my own experience, and of them I find no reference in medical literature.

Inflammation of the skin induced by external agencies is of frequent occurrence, as illustrated by the following figures taken from the reports of my clinic at the Massachusetts General Hospital during the last seven years. In this period 20,000 new patients affected with skin diseases have presented themselves, among which were 360 cases of undoubted dermatitis venenata. Of those occurring within the past two years the exciting causes were recorded as follows: *rhus*, 30; *iodoform*, 5; articles of clothing, 5; washes of unknown nature, 7; mosquito poison, 5; *kerosene*, 4; furniture polish, 3; tincture of iodine, 3; *chromic acid*, 2; caustic potash, 2; carbolic acid, 2; caustic lime, vapor of acid, balm of Gilead, mustard water, *pyoctannin*, *croton oil*, tincture of *arnica*, arsenic, tincture of *guiacum* with vinegar, of each one. In 35 the particular cause was not ascertained.

¹ Read at Meeting of American Dermatological Association, September 8, 1896.

² On *Primula obconica*, Garden and Forest, February 29, 1889; Boston Medical and Surgical Journal, May 1, 1890. On Poisoning by "Violet Water," Boston Medical and Surgical Journal, December 12, 1889.

An analysis of the etiology of the cases extending over the seven years would have without doubt added many other irritating agents to this list, but this will suffice to illustrate the great diversity of their nature. The large proportion of unascertained causes recorded is interesting, and may be explained in various ways:

(1) The lack of observation in patients. You all know how well-nigh impossible it is to get from a great majority of persons of all classes satisfactory information as to the minutiae of their doings of a few days back only. When, therefore, in your investigation of the cause in a case of dermatitis venenata it becomes important to learn just where the patient has been, what he has done, and with what substances he has come in contact during the week preceding the beginning of the attack, one gets little assistance ordinarily from his replies. It is so customary for the patient to positively deny having been in this or that suspected situation, warranted by the appearances of the case, and later to return and say, "Oh, I forgot that I had done so and so," that I am accustomed to inform my class that, as a rule, they need not expect to learn the nature of the exciting agency in any case until the second visit. When it comes to being conscious of and later to remembering the chance breaking of a twig by the roadside, the sitting for a moment on a stone wall, perhaps, and the hundred habitual incidents of daily life, any one of which may possibly be connected with such dangers, it is not strange that the data for a satisfactory diagnosis are not generally supplied by the patient.

(2) Then we must consider how great is the number of substances ordinarily employed in the arts, with the irritating properties of which the workman is wholly unacquainted, so that he is not at all upon his guard against them. Managers do not always, I regret to say, instruct their employees as to the necessary precautions in such cases. Nor does the physician make himself sufficiently acquainted with the processes and materials employed in the arts and trades, to recognize

the nature of many such cases which come to him for relief, and to warn the patient against renewed dangers.

(3) Nor must we forget the constant discovery of new chemical compounds and their introduction into manufactures of many kinds, substances of which we do not even know the name, far less their composition or properties. For such novel causes of dermatitis venenata we must always maintain an expectant attitude. And new physical forces are constantly being employed in the daily work of life, with the possible dangerous effects upon those engaged in the manipulation of which we should make ourselves familiar. As an instance, we have all, no doubt, seen a considerable variety of cutaneous changes exhibited by those who are engaged in the various applications of electricity in the useful arts, not only the result of the agencies employed in its generation, but of the direct action of the mysterious power itself.³

It is not surprising, therefore, that we so often fail to discover the immediate causes of artificial dermatitis.

Moreover, in considering the question of this or that plant or other substance as the exciting cause of an evidently artificial dermatitis, with which the patient has been in contact, we must always bear in mind the idiosyncratic vagaries of the human skin. Just as the individual stomach will not tolerate articles of food which are eaten with impunity by all mankind, so there are individual integuments which are thrown into local excitement by contact with substances which are handled by all other persons without harm. Even plants which "poison" the great majority of persons who touch them, like the venomous species of *rhus*, fail to produce the slightest irritation upon thorough application to the skin of a favored few. It is impossible to explain such individual susceptibility and exemption. We have to be satisfied with a word—idiosyncrasy. But we must always be prepared to recognize the working of such a law, and be justified

³ See Journal of December 3, 1896, for an account of severe dermatitis produced by exposure to Röntgen rays.

accordingly in suspecting the commonest plant, or other substance, in any individual case we have to investigate.

And now let me call your attention to a brief description of some cases of dermatitis venenata hitherto commonly unrecognized.

PARSNIP — PASTINACA SATIVA.

A woman came to my office with hands and wrists greatly swollen, and the dorsal surfaces of the former thickly occupied by a papular-vesicular efflorescence in process of development. There was much heat and itching. Two days previously she had washed five bushels of recently dug parsnips and wiped them with a cloth. On the following day the inflammation began. The affected skin was of a peculiar lurid color. No other explanation of the dermatitis was apparent. As she lived at a considerable distance from Boston no subsequent observation of the case was possible.

Speaking of this case to my class, one of the students informed me that he had seen men and boys present a vesicular dermatitis of the hands and wrists after weeding parsnips. As many as three or four of a gang would be affected.

Very few of the umbelliferous plants contain principles capable of exciting cutaneous irritation. In my book on dermatitis venenata I mention but three: ferula gabaniiflua, the source of galbanum; thapsia garganica; and heracleum lanatum. The latter (cow-parsnip) is closely allied to edible parsnip in its botanical features, and its leaves when applied to the skin may produce vesication. Our garden parsnip (*pastinaca*) runs wild, it is well known; and its root is described as then degenerating in esculent properties and becoming poisonous. It may be that both foliage and root retain under cultivation properties which are irritating to some skins.

HAMAMELIS VIRGINIANA.

Can hamamelis produce inflammation of the skin?
I was consulted by a man at the hospital, who had

applied to his shoulder, on account of rheumatism, a mixture of laudanum and hamamelis. The whole upper chest, upper arm, and neck were occupied by large vesicles, oozing areas, and confluent papules. No other applications had been made. Of course, there is no certainty as to the composition of preparations labelled hamamelis, and it is not impossible that some of the principles of laudanum may be irritating to the skin of some persons, although I have never known it to act in this way.

Witch-hazel is used to such an enormous extent as a household external remedy that cases of cutaneous irritation should be familiar to us all, if it were possible of exciting it except in the rarest instances. One manufactory in Boston is said to use a ton and a half of leaves and three and a half tons of bark a year in the preparation of the "extract." It must be placed in the suspected class.

OLEUM CASSIÆ.

I would record here an instance of inflammation of the skin excited by oil of cassia, which was presented by our associate, Dr. Greenough, at a meeting of the Boston Dermatological Club. I take the liberty of mentioning it in his absence.

The patient was a girl engaged in dipping wooden toothpicks in oil of cassia for the purpose of giving them an agreeable odor. A few days after entering upon this occupation her hands began to show signs of irritation, and she was obliged to leave it after a fortnight, at which time she was exhibited to the society by Dr. Greenough. The hands then smelt strongly of cinnamon. Their dorsal and lateral surfaces and the front forearms were greatly inflamed, and occupied by vesicles and oozing areas. The face was red and blotchy, and the lower abdomen was reported to be affected in a similar way, no doubt by prolonged contact with the hands during sleep.

Cinnamic aldehyde, the essential principle of cassia bark and flower buds, produces no irritating

action upon the integument, so far as I have hitherto known. The possible presence of adulterants in substances which are only rarely the cause of dermatitis should be borne in mind as an explanation of such action. Petroleum compounds have been found in commercial specimens of the oil.

HOP HORNBEAM — *OSTRYA VIRGINICA*.

I beg your attention to the following note from Charles Sprague Sargent, Professor of Arboriculture and Director of the Arnold Arboretum, Harvard University. He writes: "Do you know about the stinging properties of the hairs which grow at the base of the fruit of the hop hornbeam? On my hands they cause an irritation which does not entirely disappear for several hours. I find no reference to this fact in any of the books to which I have access."

This small tree, growing in all parts of the United States, attracts notice through the resemblance of its pendulous fruit to hops, and its wood is much used on account of its hard quality. I was not aware of such irritative properties, and should be pleased to hear if members of this Association have knowledge of such. It may be another explanation of some of the many cases of dermatitis which we so often meet with and cannot refer to contact with any well-known poisonous plant, although confident that they are due to some such cause.

ANILINE BLACK.

An account of several cases of dermatitis in members of the Boston Fire Department produced by wearing black shirts.

On June 22d, a fireman presented himself at my clinic with bands of dermatitis around the neck, wrists and lower nates, hips and upper thighs. The penis was also inflamed. The appearances were those of infiltrated erythema of a brilliant red color, decidedly elevated above the general surface, occurring either in uniform areas of considerable extent, or in

smaller, discrete circular patches, varying in size from a pea to a dime. The latter lesions were sharply defined and somewhat resembled those of urticaria rubra, although not fugitive. There was no sign of vesiculation or excoriation upon the affected areas. The bands of inflammation around the neck and wrists were from two to three inches in width, and were abruptly defined above and below. The central lower affected region was some five or six inches in width, and was not so sharply outlined: The penis was greatly swollen and reddened, and twisted upon itself. The subjective symptoms were not as intense as might have been presupposed, a mild degree of burning and itching only. There was no associated disturbance of the general economy.

The peculiar distribution of the appearances suggested at once the artificial nature of the dermatitis, and as it was apparent that it was sharply limited to parts where the collar, cuffs and flaps of the outer shirt projected beyond the lines of the undershirt, inquiry was directed to the former garment. It was learned that some two or three weeks previously the Fire Department had issued new black cotton shirts as part of the prescribed summer uniform. They were worn over an undershirt, and had a rolling collar, projecting cuffs, and were considerably longer than the latter. It was learned also that another fireman in the same house was similarly affected.

The symptoms had not developed for ten days or thereabouts after the shirts were first worn, and this proved true in the other cases subsequently treated. During this earlier period the weather had been exceptionally cold for the season, and it was not until this was followed by a period of excessive heat that the inflammation of the skin developed. Then it was that the portions of the shirt in direct contact with the parts above indicated became moistened by perspiration and actively irritating.

The attention of the Fire Department was called to the case, and inquiry was instituted with regard to the

possible existence of other instances. During the following few days three other firemen appeared at the clinic in a similar condition. The appearances were wonderfully identical in all of them: uniform areas of perfectly smooth, elevated infiltration of varying extent, with sharply defined abrupt borders, occupying portions of the trunk, especially where the under-clothing was pressed in closest contact with the integument. In one of the later patients the parts affected were the same as in the first instance, but in the others large areas upon the trunk were intensely inflamed, and it was learned that the wearers were profuse sweaters and that their undershirts were saturated with perspiration in consequence of their ardent occupation. In no instance did the inflammation extend below the lower level of the garment on hips, buttocks and thighs. In three of the patients the penis was affected.

Two shirts were issued to each man, and each was worn for a week without washing. It was during the wearing of the second shirt, that is, during the intensely hot weather of the second week, that the cases developed. In a subsequent instance a shirt which had been washed retained undoubtedly its irritative properties. In two of the cases the affected areas on the arms passed later, in consequence of continued friction and scratching, into a true eczematous condition.

During the period of observation of the affection among the firemen an out-door laborer came to the clinic presenting similar cutaneous manifestations, which had appeared a few days after wearing a black shirt made apparently of the same material. In this case, too, the dermatitis was sharply limited to the regions covered by the garment.

June 26th, a shirt belonging to one of the firemen most seriously affected, one which had been worn a few days before the outbreak and which had been thoroughly moistened by the underlying shirt, and which had not been washed, was sent to Prof. Wil-

liam B. Hills of Harvard University for analysis. His report follows:

BOSTON, July 13, 1896.

DEAR DOCTOR:— I have completed my analysis of the black shirt which you left with me a fortnight since, and have not been able, using about a square foot of the material, to detect any metal other than iron; antimony, arsenic and chromium are absent. The compound of iron commonly used in the manufacture of aniline black is the chloride, and this is supposed to exist in the fabric in some sort of combination with the pigment.

It would seem that the irritant action of this material is due either to the iron compound, or, more likely, probably to the coloring-matter itself, or to some other organic material entering into the composition of the coloring matter, or employed in fixing the color upon the fabric.

I suspect that some of these cases of eczema are due to the pigments themselves; but, so far as I know, the action of these is unknown. I do not think their action has been studied experimentally. It has been customary to attribute the effects to arsenic, antimony, etc., especially in cases in which the compounds of these metals are present in the fabric, and to let the matter rest there. In this case something else is evidently the offending material.

I do not know of any facts warranting an opinion that iron has the same irritant action that arsenic, antimony and chromium have in the combinations used in printing and dyeing; and, it seems to me, we must look upon the pigment itself, or upon some other organic constituent of the fabric, as the *probable* cause of the trouble.

Yours truly,

WILLIAM B. HILLS.



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